

# Gopher Mountain Lodes

by

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This brief informal report and discussion will focus on the known and surmised Lodes of Gopher Mountain, a supplement to **Dutch Hills Lodes**. It will compare 3 areas in close proximity, with a little geology, geophysics, geochemistry and other information, with the goal of a better understanding of the structures concealed by a thin mantle of detritus. This will aid in exploration and development of the under-exploited lodes which are the source of the placers. For further details consult the reports specifically covering the geophysics and other subjects of interest.

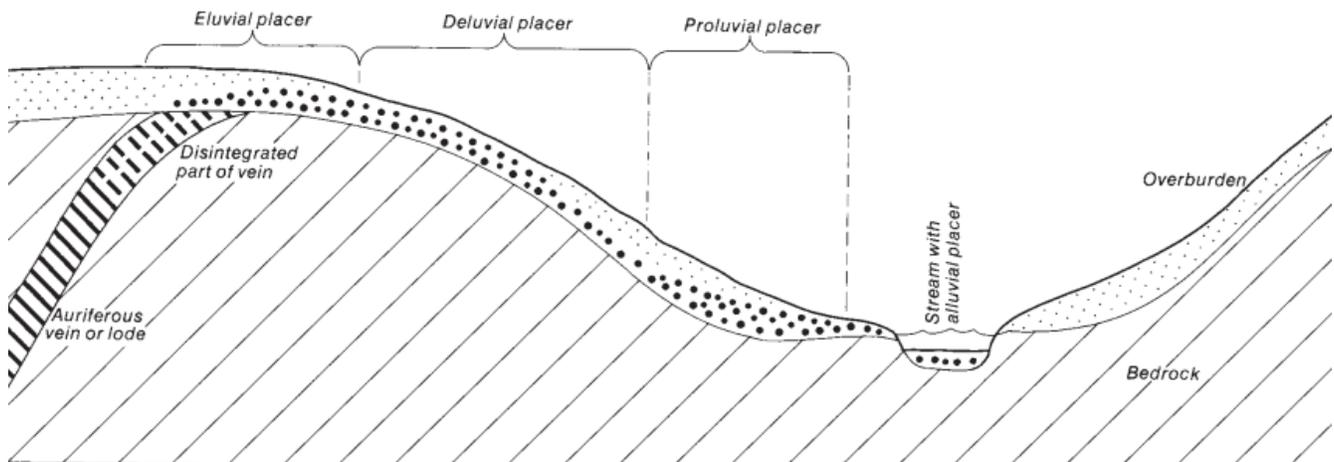


Fig. 1 Cross-section that could be the 300K Yd Bench, the Potato Patch, or the saddle at the head of Ramsdyke and Jody. Eluvial placer is also referred to as “Residual placer”, especially when it’s just decayed in place.

**A discussion about the 300K YD Bench:** when I 1<sup>st</sup> walked up to it in May 1985, for recon and a place for a basecamp (it was to clayey and perpetually soggy), I’d passed by the remains of a very serious old log dam near the head of Willow Creek in the canyon, including 48” diameter iron pipes long-flattened by years of crushing ice, and between my research and experience, knew they’d done this, dammed all of Willow and Gopher at the head of the canyon to:

1. Dewater the 1700+' of the canyon, for 2 shifts of picking and shoveling the bedrock, because the gold is 6'd in the natural sluicebox, and
2. Have lots of water (with above ditches added-see Sketch Map below) for hydraulicking other spots such as Lucky and Puzzle below the canyon.



Fig. 2 Bedrock in Willow Creek Canyon, unit Kjs. Fieldbook is for scale and orientation.

And I'd noted the veins in the canyon, and up Gopher, and knew they weren't the 'Bull Quartz' veins of the Peters Hills. Those have no current known economic value.



Fig. 3 Gold-bearing mineralized quartz veins in Willow Creek canyon, Big Dam Veins in this report, 62.5784N 150.8476W, 0.04 oz/T au. >1'wide. Location(s) 22 and 24 Fig. 4 below, 224 in Fig. 5 below. Pyrites assayed 0.4 and 0.6 oz/AU/T (USBM). Open on strike and depth.

I had not made it to the Potato Patch yet, but on the 300K YD Bench was a Cat cut, and by following that I found 3 large, approx 8" drill holes. The material around from the drilling was light-tan-to-orange, and had lots of pieces of broken, obviously mineralized quartz. It was very clayey, but yielded many small, bright colors, of gold.

That, and the veins in Willow and Gopher indicated that this was not the result of damming of Willow Creek either by ice or man, or a fluvial-derived placer deposit, or was the Tertiary conglomerate, but is instead a residual lode gold deposit. I found out later from Maurice Oswald and Corey Loyd from D.O.W.L. Engineers as well as Mike Goldenstein that the holes found good values, but it wasn't part of Goldensteins map of the drilled channels, only a reference to the 'bench', as seen in this Government map of that time, during the US Mineral Survey which Goldenstein participated in:

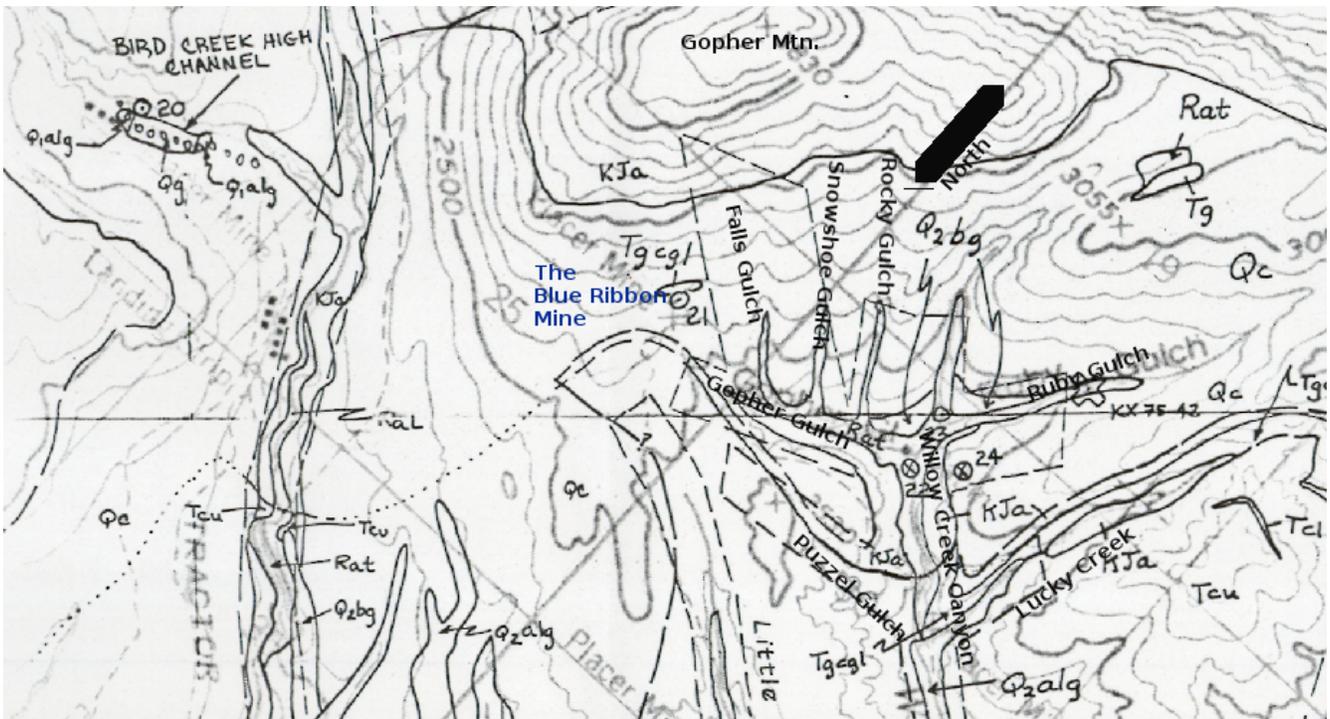


Fig. 4 Map of Gopher Mountain, modified by this author [I only labeled the creeks and Gopher Mountain, and added a North Arrow and labeled the Potato Patch-they did the mapping], base Clark and Hawley USGS.

Nos 22 and 24 are lode sample locations in the Willow Creek canyon. The exposure near '3055X' is at the head of Willow and is an intrusive ('Tg'-Tertiary age granitic<sup>1</sup>) that has been mined as a lode in the past ('Rat-Recent alluvial tailings'). It is now in Denali State Park. The '300K YD Bench' is shown by them as 'Q2bg', Quaternary age bench gravels, which is incorrect. Tg cgl is the White Quartz conglomerate. KX are Kardex Files. 21 is the Potato Patch.

I discovered a granitic outcrop 1320' North of the Potato Patch, on Falls Gulch, within the BRI/TVMC Lease. And on the north side of Gopher Mountain, above Ramsdyke, I found a very different intrusive dike. It's dark green, very hard, and assayed for high levels of elements such as Chromium, which indicated it was probably a Gabbro, a type of Mafic or Ultramafic rock, and possibly a source for the platinum group elements found around Gopher Mountain.

The light green intrusive body in the Willow Creek canyon, cut by quartz veins and visibly mineralized, has to the best of my knowledge never been assayed, as I only discovered it recently. I suspect it is part of the Willow Creek Dike that has been intruded by a Felsic event, but was originally Mafic or Ultramafic. This is similar to a body I visited on Bird Creek, that was proven, after much government scientific work, to have been a Mafic or Ultramafic body that was intruded and altered by a later Felsic event. This is important because the source of the Platinum has never been reported, and frankly all efforts to discover the source have been weak.

1 See Bedrock Map

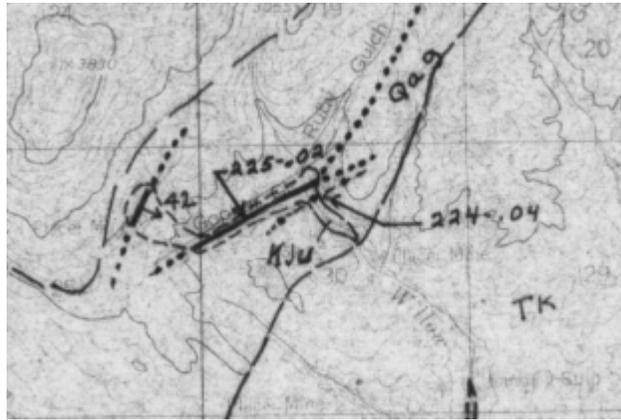


Fig. 5 Map of Gopher Mountain, source Clark and Hawley, USGS. Some bedrock structures shown, and 2 lode samples on Gopher and in the Willow Creek canyon with interesting gold values. The shear zone crossing the Potato Patch strikes NE and dips 42 degrees East.

The later work we did the season with Mike Palmquist furthered that view.

I found crushed stained quartz in weathered, altered and decayed Argillite, and panned free gold from it:



Fig. 6 Bedrock outcrop, altered and weathered country rocks with rusty quartz veins, 300K YD Bench. Reported free gold values of \$12/yard gold @ \$300/ounce (Goldenstien, Renshaw). Free gold can be panned from this outcrop.

Were this a fluvial deposit, the pieces would be rounded, there would be some bedding, and the clay matrix would have been removed.

<b>Geologic map unit</b>	<a href="#">Flysch sequence, Early Cretaceous and Late Jurassic</a>
<b>Mineral deposit model</b>	Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a).
<b>Mineral deposit model number</b>	36a
<b>Age of mineralization</b>	Tertiary; mineralization is interpreted to be related to the felsite dikes that are described as Tertiary in age by Clark and Hawley (1968).
<b>Alteration of deposit</b>	Argillic alteration along fault zones (Clark and Hawley, 1968).

Quartz is milky white to orange-rusty or black, locally vuggy with minor pyrite, arsenopyrite, white mica and free gold. The veins may be related to the Tertiary Kahiltna pluton (Tmk) mapped by Reed and Nelson (1980) to the northwest.

Following are diagrams of geological structures to illustrate our deposits. The Reader may recall my example of 'Fingers' of intrusives.

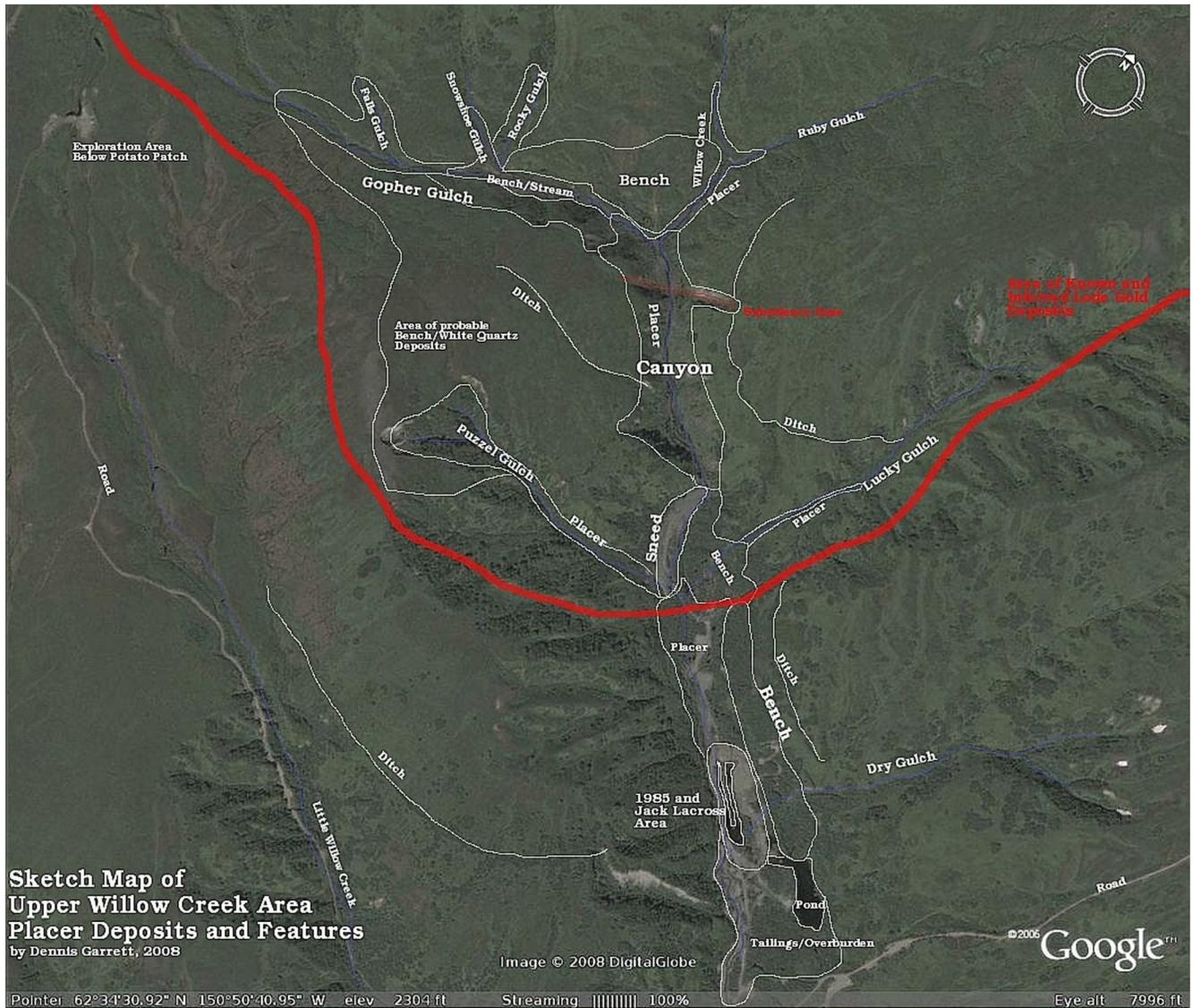


Fig.7 Sketch Map of Upper Willow Creek created by me. The area above the red line is full of mineralized quartz veins as well as weathered, decayed deposits. Note the red cut just above the word “Canyon”, that’s the large quartz veins at the old dam. It is reasonable to surmise that the veins will be found in the rocks under the thin surface covering.

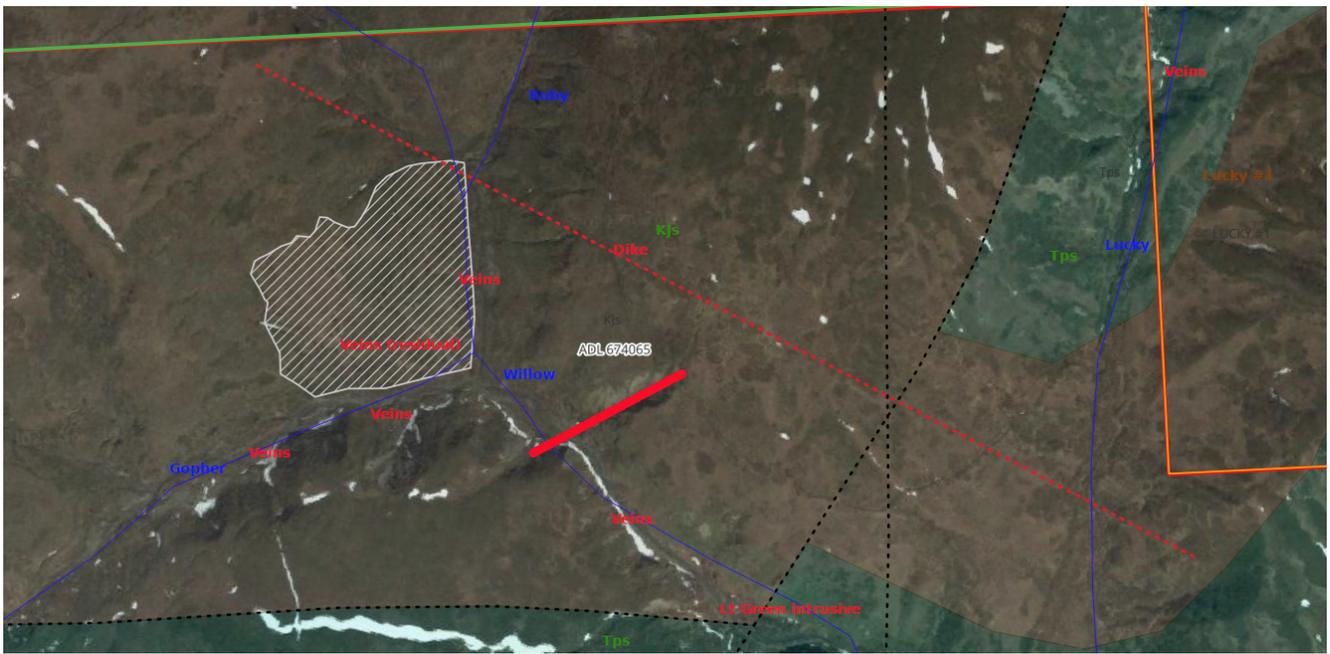


Fig. 8 Updated Structure, Bedrock Geology, Upper Willow Creek, Gopher Gulch, Ruby Gulch and Lucky. Data sources compiled into the GIS (QGIS-Linux): Alaska D.G.G.S., U.S.G.S., US BLM, and this authors boots on the ground. BRI/TVMC Lease, Lucky #1 and Park Bdy shown. 300K YD Bench in gray hatching.

The solid red line is what I call the Willow Big Dam Vein (because it's where logs were sticking out when I 1<sup>st</sup> slipped over the ice in May 1985), they cut into it and 'Gophered' (a mining term meaning to follow the vein), for over 700'. It follows the trend of the Gopher Gulch Fault/Contact, and is further indicated by the right-lateral displacement of Willow Creek at that point.

Dashed black lines are faults/contacts. Dashed red line is the Willow Creek Dike. The placement of the veins are clearly structurally controlled.

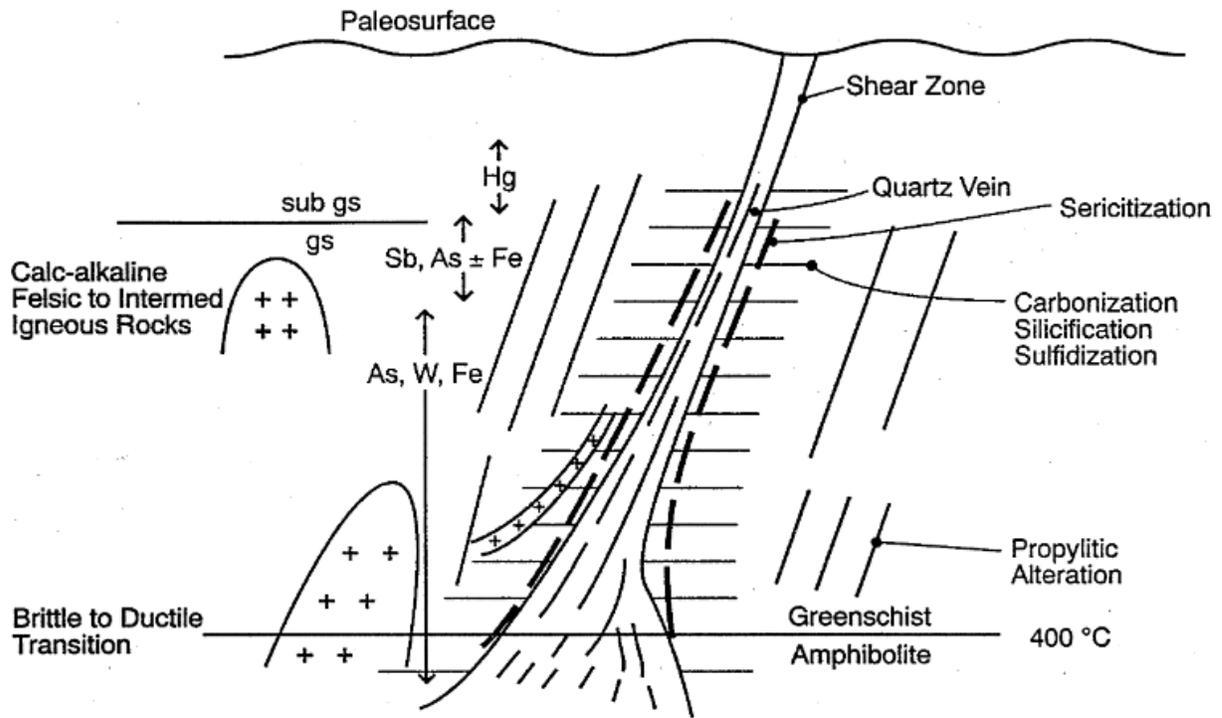


Figure 1. Schematic geologic cross section of a low-sulfide gold deposit.

Fig. 9 Low Sulfide Gold Deposit. Clark and Hawley (USGS) mapped a shear zone crossing the Potato Patch, see Fig. 5.

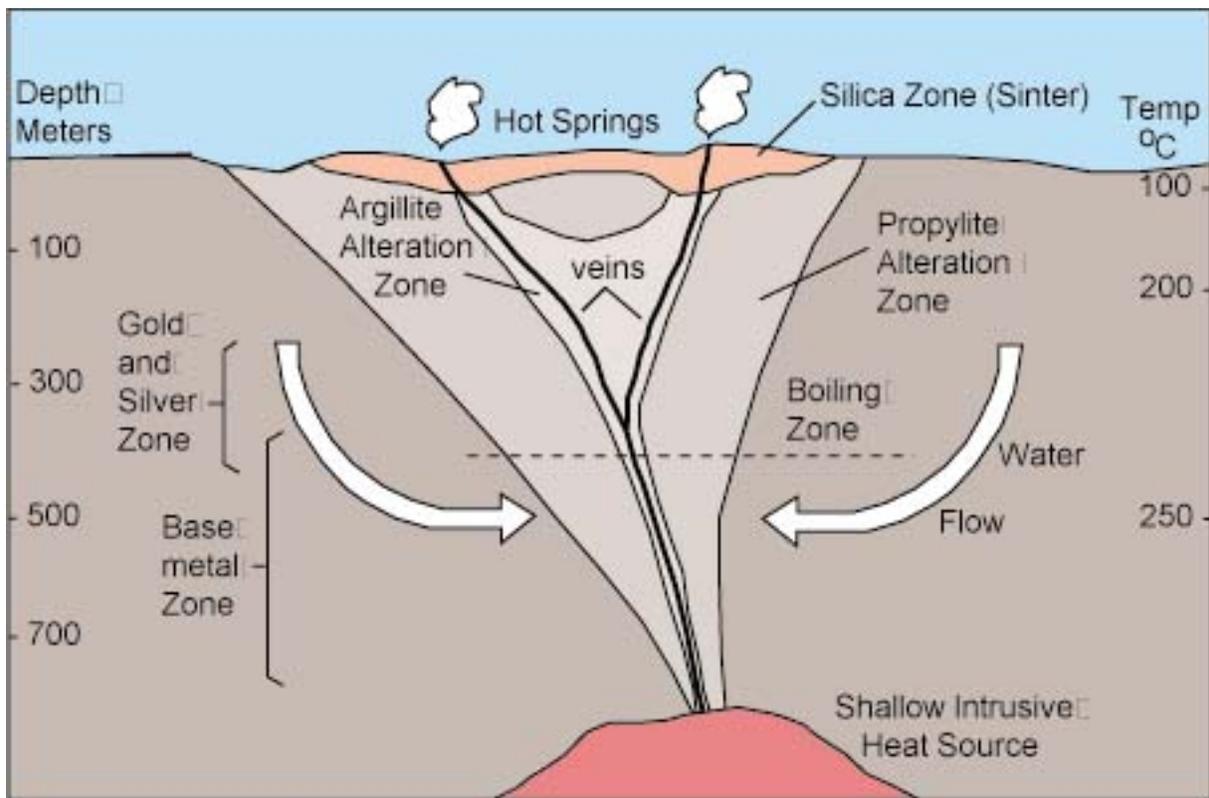


Fig. 10 Our deposits show strong Argillite alteration.

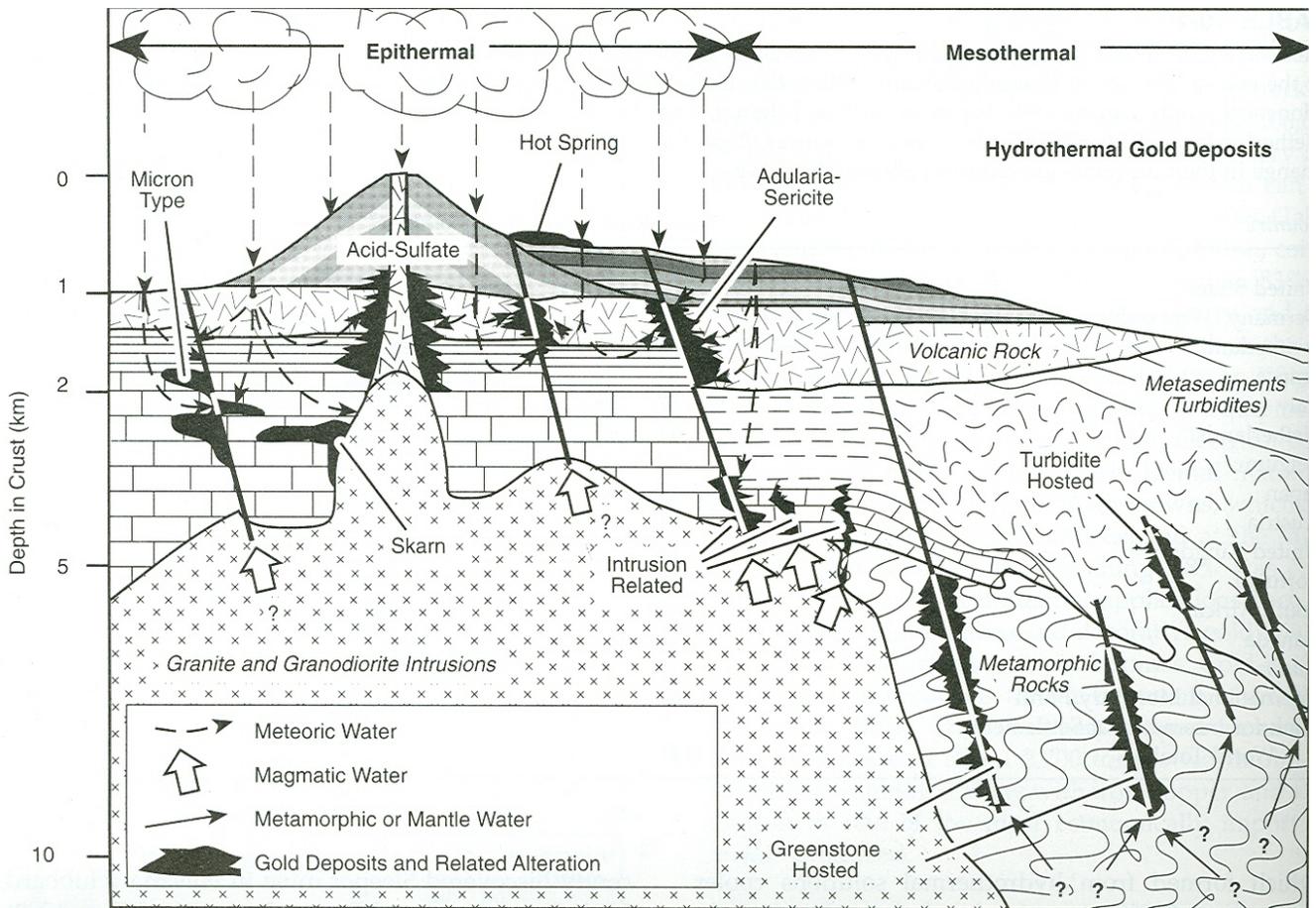
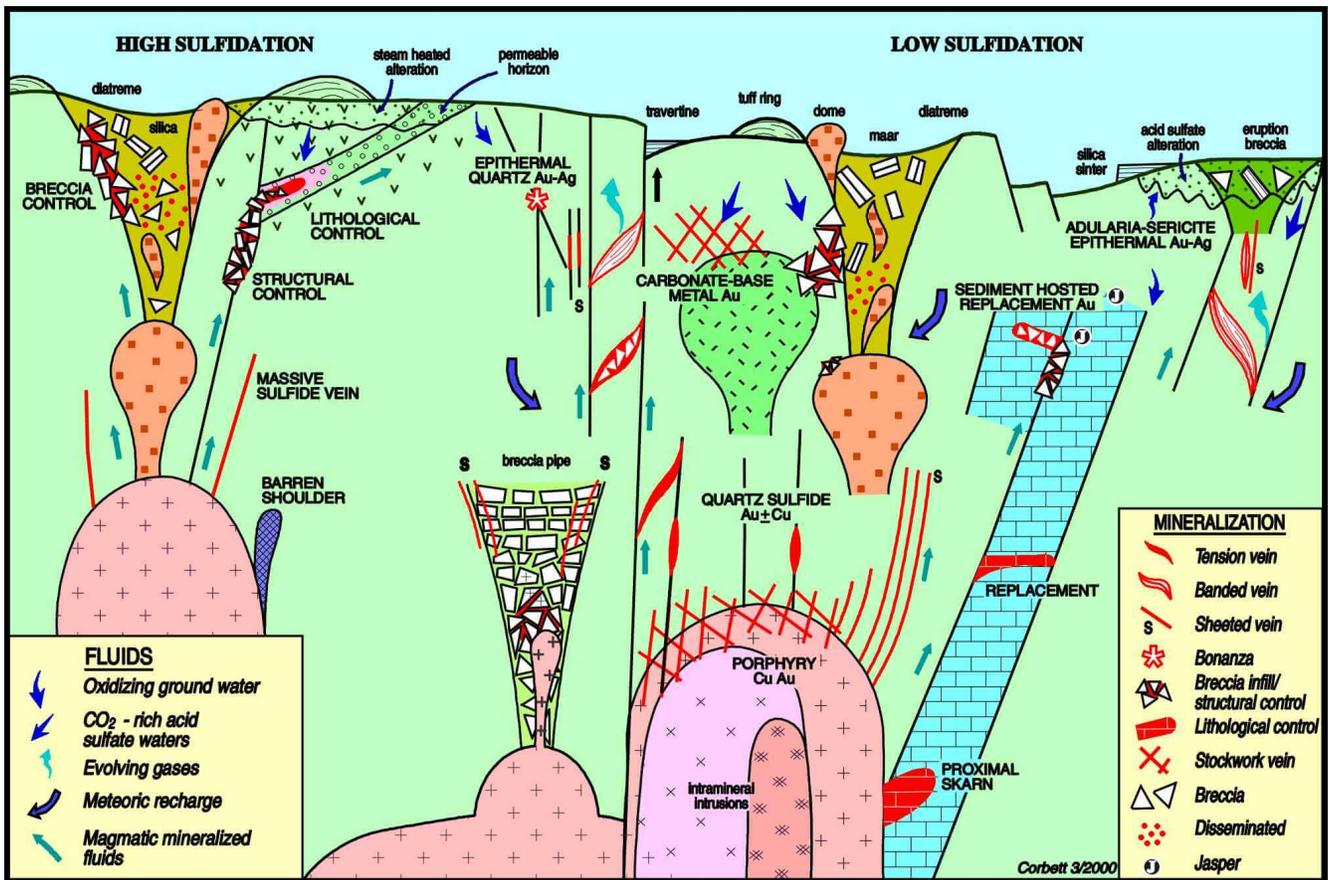


Fig. 11 Our deposits are of the Epithermal type, Intrusion Related, with Sericite inclusions.



12874 **CONCEPTUAL MODEL FOR STYLES OF EPITHERMAL GOLD-SILVER AND PORPHYRY COPPER MINERALIZATION**

Fig. 12 In this illustration, we are Low Sulfidation, Adularia-Sericite Epithermal Au-Ag.

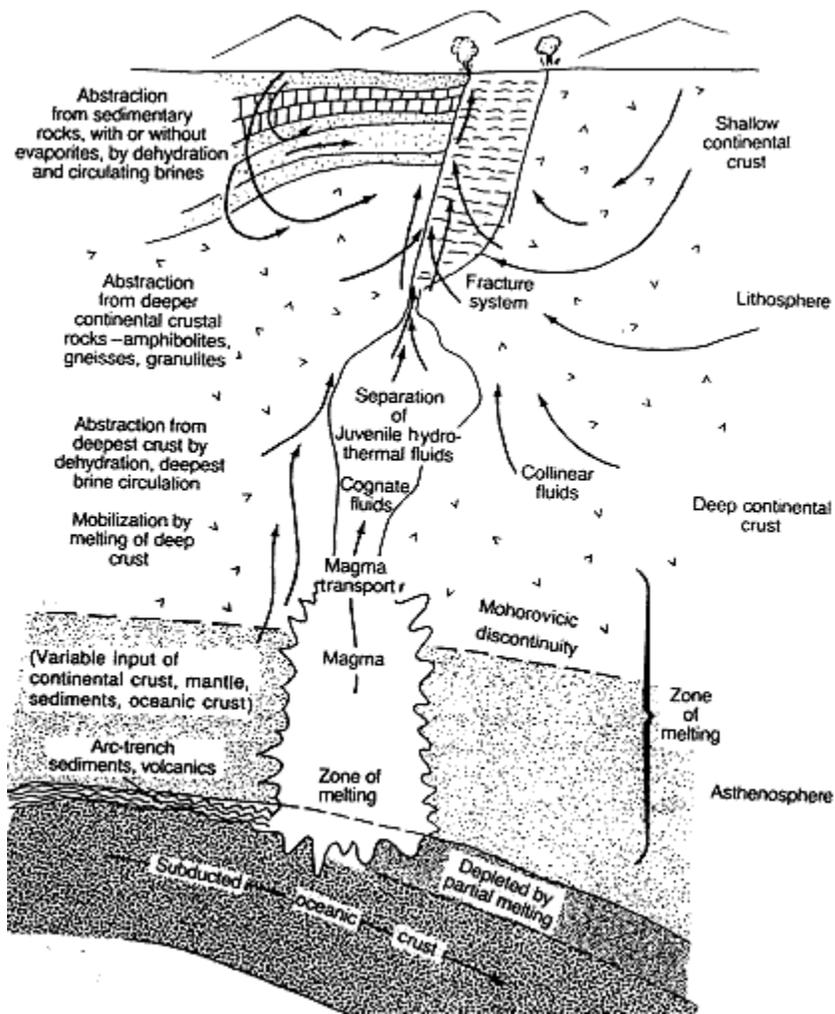


Fig. 13 Illustration of the Subduction Zone, in our case, the Pacific Plate is being forced under the North American Plate.

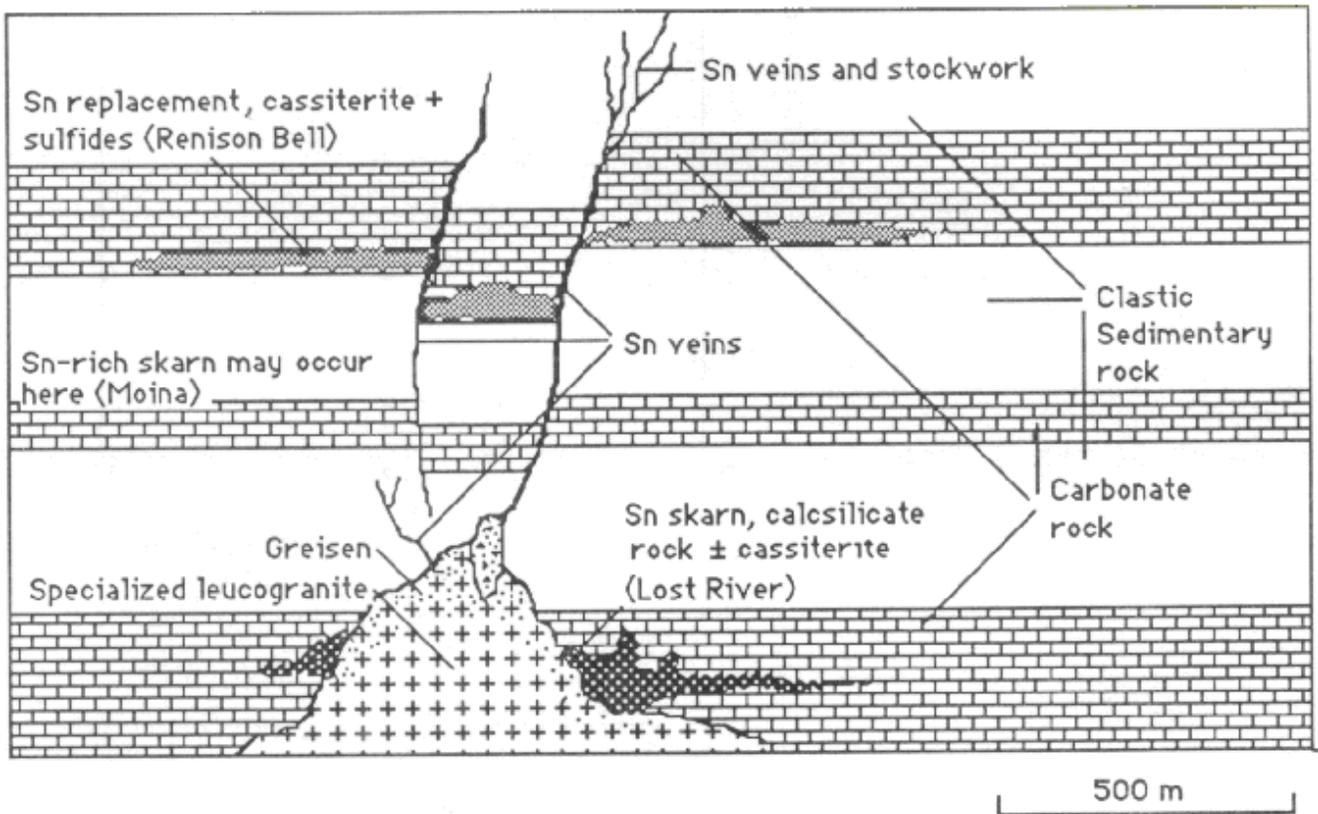
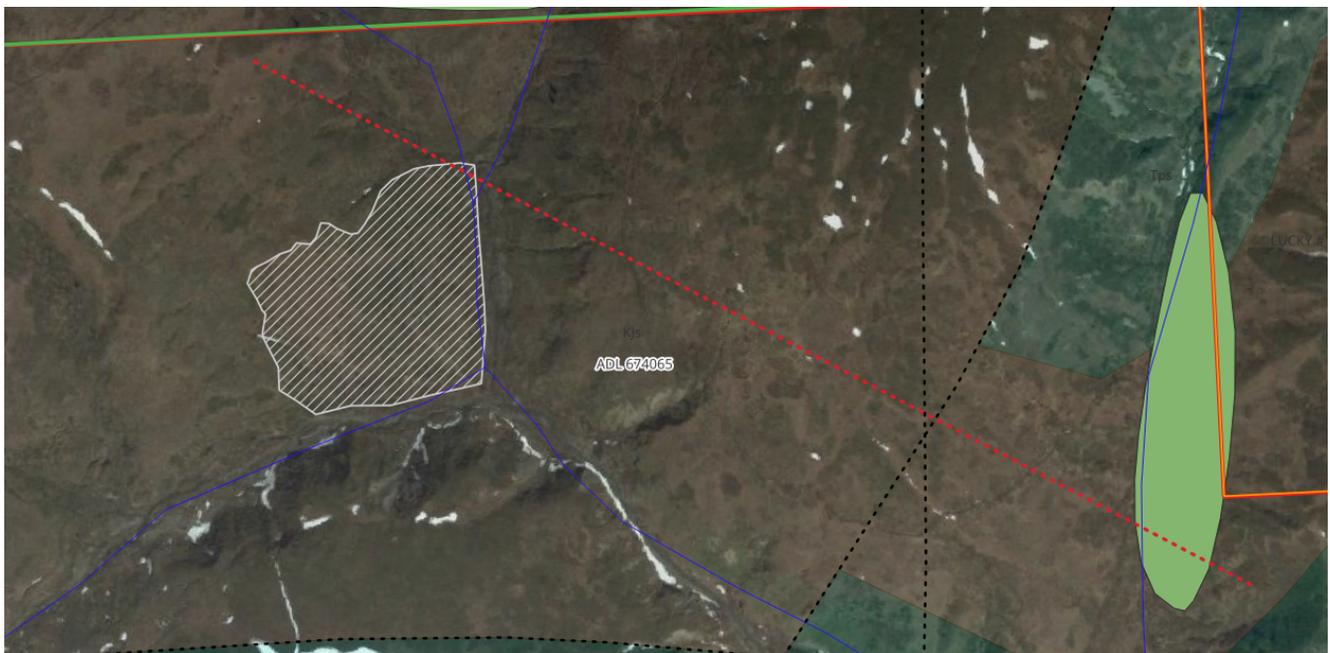
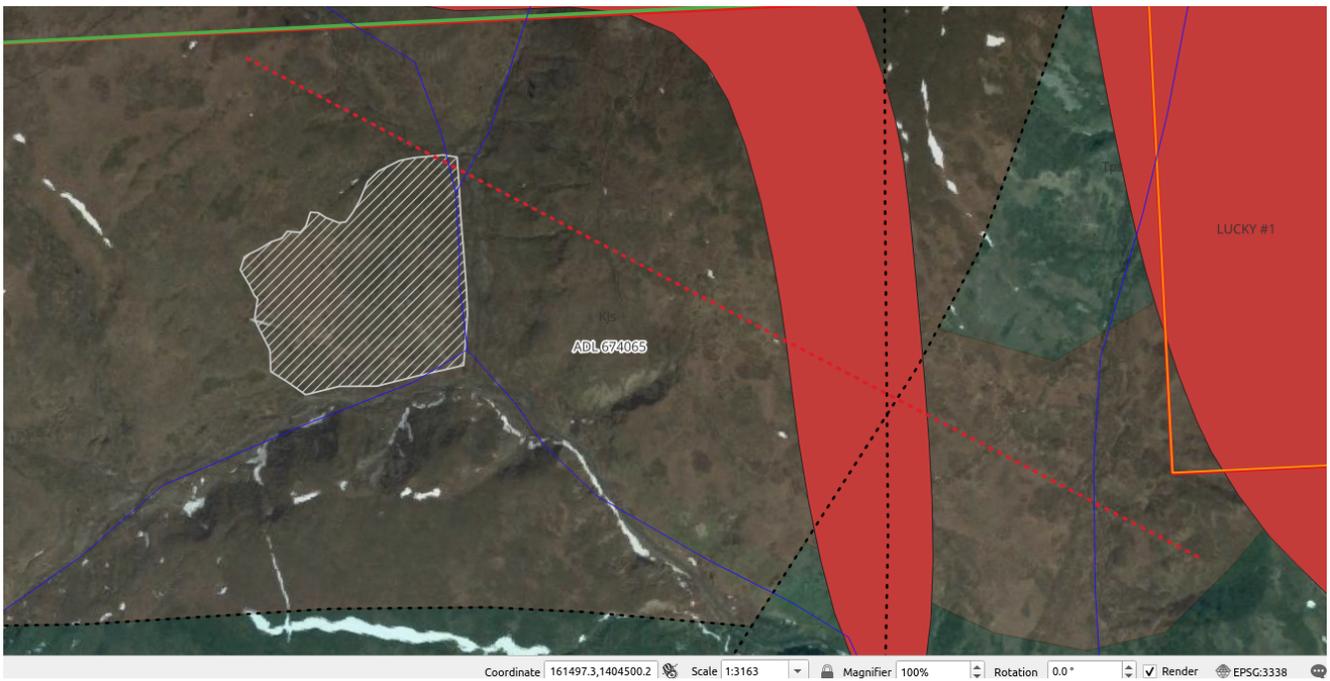


Fig. 14 Tin (Sn) veins.

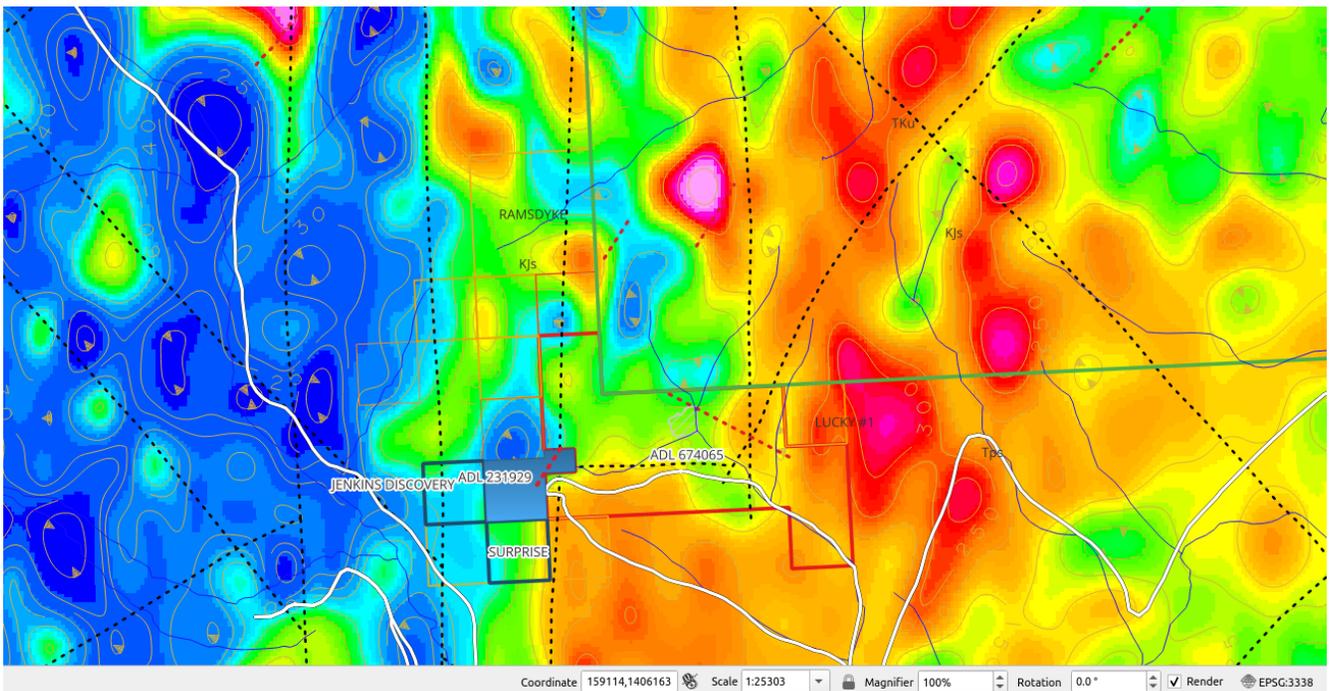


56khz resistivity object of interest on Lucky.

14 Gopher Mountain Lodes



Magnetics Upper Willow/Gopher/Ruby, and Lucky.



Area Bedrock Geophysics Overview. Simple faults in dashed black, dikes in dashed red. This is an indication of the alteration haloes, for example the common argillic alteration haloes we find around Gopher Mountain. Ramsdyke is an interesting set of units. On the ridge between Ramsdyke and upper Poorman, at the head of Willow there is a felsic outcrop that even way back when I saw it, had been mined, for lode not placer. That's left of the red dike on the map, and in Ramsdyke I found mineralized

15 Gopher Mountain Lodes

veins, but after climbing back out of the steep gully of rotten rock and rotten snow, then hump over Gopher Mountain, I said well I see why no one has mined that very hard, yet! But the view was spectacular.

Jenkins went for a weekend trip, returned with a rucksack full of gold-quartz.

He worked, by ‘gophering’ and following the decayed veins such as at the Big Willow Dam. That cut is about 750’ on the strike of the vein, about 100’ deep not considering the “V”, and at least 1 ditch was dug to sluice it out. There are similar smaller cuts on the east side of Gopher Mountain, and Puzzel was treated this way. That is a significant amount of undereporting.

### **Targets for Lode Exploration:**

Before you enter the mouth of the Willow Creek Canyon (face upstream), on your right is Lucky, on your left is Puzzel. At the head of both are small orangish rusty visibly mineralized quartz vein stringers in altered soft green Argillite.

The light green intrusive is after the bend and on your right after entering the mouth of the canyon. I found it by following the ‘float’, and shoveling. Above that is a swarm of small quartz veins, then above that, is the Big Dam Vein. We dug into that cut along the strike of the vein and the old cut with Palmquist. There are sections in between as well as along Gopher that are covered.

Next is, to the front, the rough trail up the 300K YD Bench, or left up Gopher, for those veins, or right up Willow.

At the saddle of Ramsdyke and Jody is an orange clay full of coarse quartz pieces, bright angular gold was panned from the clay, it’s similar to the Potato Patch. Small, < 1” rusty quartz veins are abundant, on the backside of Gopher Mountain, in Ramsdyke and Jody. Evidence of small-scale mining.

The goal will be to collect representative samples and map the structures in more detail to follow the dip and strike of the veins.

“Prospecting done since the visits of Capps (1913) and Mertie has resulted in the discovery of additional lode sources.” “Gold-bearing lodes in the Yentna district, which have not been as well described, include small and locally very rich deposits associated with felsic dikes and apparently low-grade deposits in major shear and altered zones.” “Assays exceeding 1 ounce of gold per ton have been obtained from three of these areas, and selected quartz-arsenopyrite vein material from one prospect assayed about 200 ounces of gold per ton.” “ Some of the small vein deposits of the Yentna district are locally rich enough in gold and tungsten to be exploited profitably if mined on a small scale”.<sup>2</sup>

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2 (USGS, Clark and Hawley, 1972).